

Clinical Predictors of Fatigue in Men With Non-Metastatic Prostate Cancer Receiving External Beam Radiation Therapy

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Background: Fatigue is one of the most distressing symptoms experienced by people with cancer receiving radiation therapy.

Objectives: The goal of this study is to evaluate clinical predictors of worsening fatigue during external beam radiation therapy (EBRT) in men with non-metastatic prostate cancer.

Methods: Thirty-five men with non-metastatic prostate cancer scheduled for EBRT were followed at baseline, midpoint, and completion of EBRT. The Functional Assessment of Cancer Therapy–

Fatigue scale was administered. Demographic and clinical data were obtained by chart review. Paired t-tests, correlations, general linear models, and logistic regressions were used to determine associations between fatigue scores and clinical data.

Findings: Red blood cells, hemoglobin, and hematocrit levels were highly intercorrelated and, therefore, were grouped as one composite variable termed *heme*. Heme levels at baseline and androgen-deprivation therapy (ADT) were significantly correlated with worsening of fatigue symptoms from baseline to midpoint and endpoint. ADT alone did not have a significant correlation with fatigue, but it indirectly affected fatigue levels by influencing heme markers as treatment progressed. These findings provide evidence that hematologic markers and the use of ADT assist in predicting radiation therapy-related fatigue and guide symptom management.

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Cancer-related fatigue (CRF) is defined as a sense of tiredness that persists over time, interferes with activities of daily living, and is not relieved by adequate rest (Hall, Mishel, & Germino, 2014; Piper & Cella, 2010; Weis & Horneber, 2015). Fatigue during external beam radiation therapy (EBRT) has been reported to increase in severity during treatment (Fransson, 2010).

Current guidelines for prostate cancer recommend active surveillance, EBRT, androgen-deprivation therapy (ADT), and/or radical prostatectomy for clinically localized prostate cancer (Brawley, 2012). Although these treatments improve and

prolong patients' lives, side effects often persist long after treatment completion (Singer et al., 2012). Fatigue is among the most distressing symptoms experienced by people with cancer and negatively affects their daily activities, physical well-being and functionality, and relationships with others (Weis & Horneber, 2015). ADT, in particular, may play a role in anemia, which may contribute to fatigue (Guo, Li, & Bhasin, 2014).

The importance of predicting the risk of adverse events associated with cancer treatment cannot be understated; the clinical implications in personalizing cancer therapy and improving nursing care are of great importance. Therefore, the